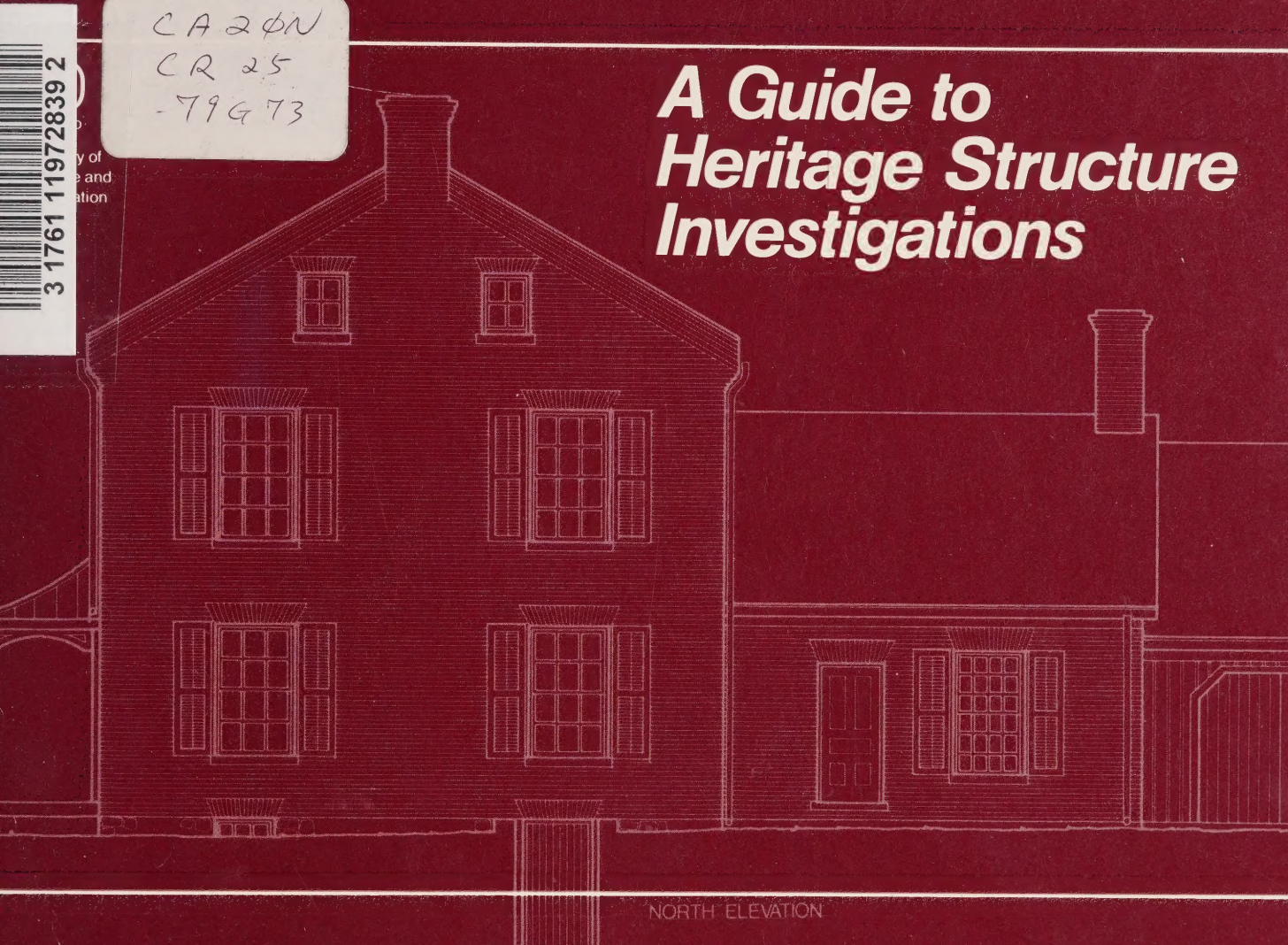
A Guide to Heritage Structure Investigations



NORTH ELEVATION

Ontario

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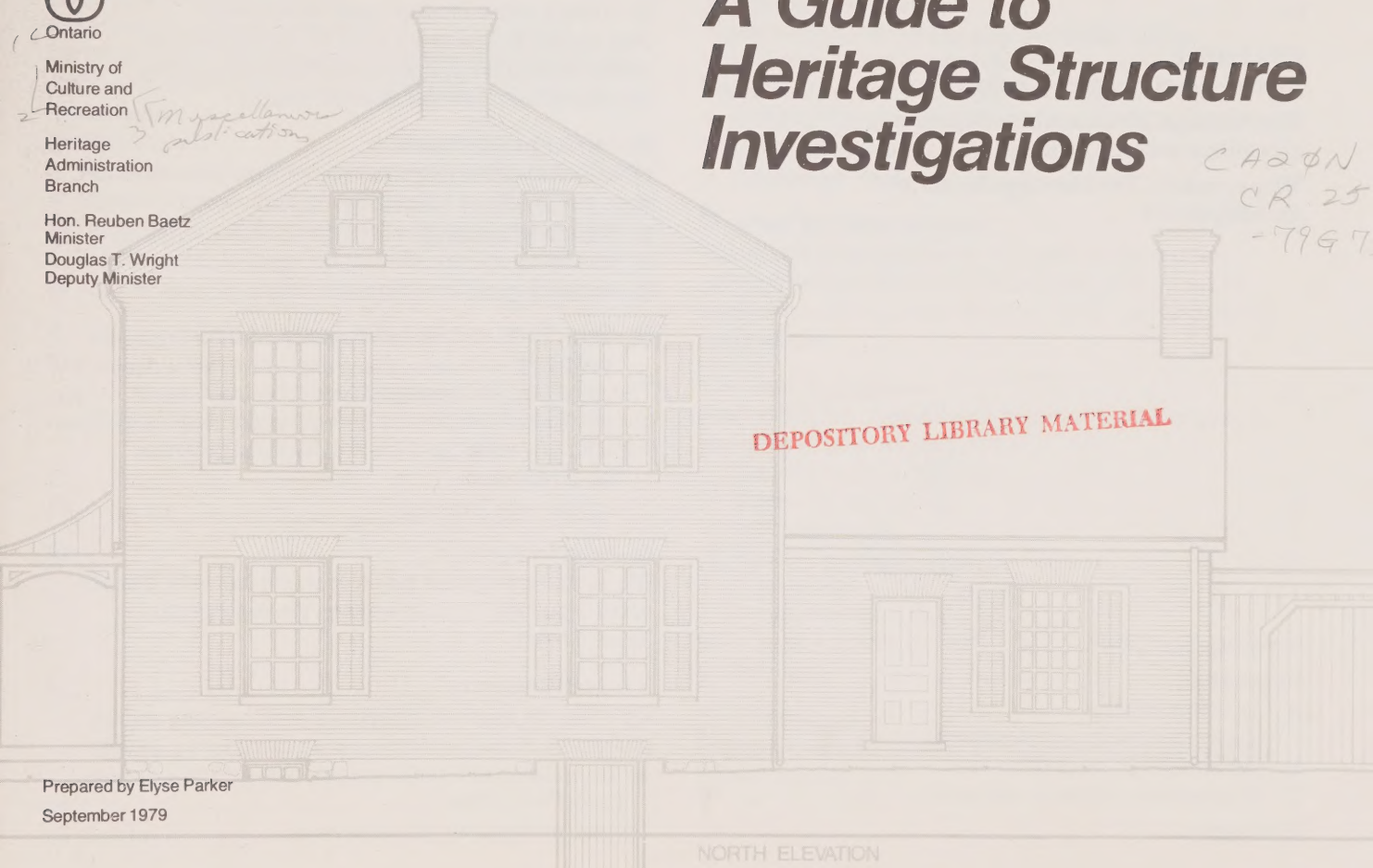

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Architectural Heritage Conservation

Today, as the focus in our towns and cities centers increasingly upon existing structures, more and more individuals find themselves involved in the upgrading, re-use and alteration of heritage properties. Conservation reinforces our cultural links with the past; it maintains development at a human scale; and it provides alternatives to new construction. Architectural conservation can range from a meticulous period restoration to drastic renovation in which only the structural elements of a building are preserved.

1 – A building can be expanded to make it more suitable for today's needs.

Buildings reflect the changing nature of communities. Once the centre of activity, some structures are left vacant, underutilized or abandoned when a new facility in a different location can more effectively serve the purpose. Through neglect, attractive and functional buildings unnecessarily deteriorate, lowering not only their own value but also that of their neighbours.

The best means of conserving any heritage structure is to make good use of it. The approach involved in achieving this goal will vary. Sometimes it will be as simple as cleaning the facades of a block of row houses to initiate local housekeeping and repair. In other cases, architectural conservation may mean more substantial building alterations such as those involved in converting a building from one use to another. The best approach to the property will be determined by its own qualities and characteristics; the needs and opportunities provided by the community in which it is located; the energy and imagination of those involved with its conservation; and, finally, the professional and financial resources that will ensure the project's implementation.

The scope of architectural conservation is limitless. With necessary resources, there is no building that cannot be saved. Heritage properties are often in sturdy condition and may exhibit fine examples of special building materials, craftsmanship and design. Moreover, they are frequently situated in prime locations in the community. Public buildings, institutional and educational structures,

2 – Preserved buildings include those that are restored to their original condition for use as museums.

3 – A building can be restored to its original splendour while continuing to fill an ongoing function in the community.

4 – A building that has outlived its original purpose can be made to serve a contemporary use.

commercial and industrial buildings, private residences, hotels and houses of worship have all been successfully conserved.

It is important to distinguish the different approaches to architectural conservation. Restoration, the re-creation of a specific condition of a building's past, is usually confined to those buildings intended for public use or those operated as historically correct museums. Restoration aims to achieve maximum authenticity in structures that will primarily serve a teaching function. The need for accuracy makes restoration an expensive approach.

Rehabilitation, recycling, renovation and adaptive re-use, all describe the process of conserving some aspect of a heritage property while accommodating it to modern needs. Under this classification fall the widest range of heritage projects. Here the possibilities extend from gutting the building to less drastic renovation involving the rearrangement of interior space.

The challenge of architectural conservation is great. The conserved structure must be functional, competitive with new design and yet operate within the inherent confines of the heritage property.

The Heritage Structure Investigation – a problem solving process

This guide is designed to help those planning for the future of a heritage property. An investigation must explore and determine the potential success of any changes contemplated for the property, and the manner in which these changes can best be approached and implemented. An investigation will forestall problems that may occur through wishful thinking or unsubstantiated planning.

The study will show to the owner/developer the building's possibilities and will suggest methods of implementation. To those who may be supporting the project financially, morally or politically, the investigation must prove that the project merits their money, time and energy.

There are a number of different approaches to heritage structure investigations. In most cases, the purpose of the study will be to test the validity of a preconceived idea for the building's future. **The investigation may reveal that the suggested idea is not workable and will thus prevent expensive errors at a later stage.** Sometimes the investigation will be a search for the best new use or approach to the heritage property. One or a number of possible alternatives may be suggested. In other cases, a heritage structure investigation will analyze methods and costs involved in upgrading a heritage property. These could range from a determination of structural stability to a cost analysis for replacement of deteriorated architectural features.

The first step in the preparation of a heritage structure investigation is to determine the purpose for the study. Could new use save a building threatened with demolition? Do you think the building may successfully house the community centre the municipality so desperately needs? Or, will the community's architectural gem be revitalized by extensive cosmetic surgery? By determining the purpose, the investigation's goals and objectives will become clear. These may change over the course of the project, but they are the starting point, suggesting the areas in need of investigation. **Attempt to formulate goals and objectives before soliciting professional help.**

These goals and objectives should be set out in a list called the 'terms of reference'. This will act as a guide to those working on the project to ensure that the appropriate questions are both asked and answered in the investigation. In addition, the terms of reference will help identify the problems and needs of the study; they will inform the consultant about the results desired; they will help to monitor the study in-process and to assess the completed investigation.

Regardless of the goals and objectives of the project, the methodology of each investigation is best approached as a "problem solving process" involving three phases which should overlap at various points. This guide is organized in a manner that outlines the procedure involved in working through the investigation. The three phases are as follows:

I RESEARCH PHASE
The character, condition and limitations of the property are investigated. This may include an examination of the physical condition of the property, its heritage significance, an analysis of the site and possible uses for the property.

II ANALYSIS PHASE
At this stage the ideal relationship between the researched data and the intended plans for the building are explored. Such factors as government regulations and the level of community support will likely suggest and narrow the development alternatives.

III SYNTHESIS PHASE
Final recommendations are made with regard to the feasibility of proceeding with any or all of the possibilities suggested by the investigation. In addition, it will be determined how best to finance and implement these various possibilities.

The types of documents commonly associated with building restoration, upgrading and re-use, should be clearly distinguished. The 'heritage structure investigation', the subject of this guide, is prepared before any physical work commences on the property. At a later stage, in order to guide the contractor and the construction team, working drawings will be prepared to precisely illustrate the proposed changes. In conjunction with these drawings, the architect will prepare specifications which set out clearly the work to be done, the types of materials to be used and the legal responsibilities of all involved. Working drawings and specifications cannot be prepared until completion of the heritage structure investigation.

Eventually, it will be necessary to communicate the findings of your investigation. Depending upon the individual case, the form could be a set of plans, working drawings and exact specifications; a document constructed in such a way that pages can be added or removed as the project grows; or the traditional report form.

In promoting the project, flyers, posters or handouts are often useful. They need not contain all the technical information available in a heritage structure investigation but must provide an accurate portrayal of the project. From the beginning of the project, the manner of conveying the investigation's findings should be considered.

This guide is not meant to be the final word or the exhaustive text in heritage conservation. It is merely an outline of how to approach a heritage project, a suggestion of possibilities. The substance of the investigation will be filled out by the individuals participating and will ultimately be determined by their creative abilities.

Who prepares The Heritage Structure Investigation?

Any of several citizens of the community may want to investigate a heritage property. They may range from local historical society members to land developers, from architects to municipal employees.

The heritage structure investigation is usually prepared by a team of professionals co-ordinated by an architect or planner. A growing group of architects, planners and other professionals in this province have earned a reputation for their special interest in and sensitivity to the needs of heritage properties. Professional consultants should be selected for their expertise, reputation and competence as well as their willingness or availability to complete the assignment within a required period of time.

Be prepared to pay for professional expertise. The work of competent consultants will often result in great financial savings so their proper compensation will be a worthwhile expense. However, if the fee seems out of proportion to the anticipated cost of the project, do not hesitate to approach another professional for a comparative rate. On the other hand, good advice is not cheap.

Indeed, the professional expertise required for the heritage structure investigation may exist within your community. The work may therefore be achieved by a volunteer group working alone or under the direction of a consultant who will organize the findings. Assistance must also be forthcoming from members of historical societies, government staff, educators and design professionals. In the event that work exceeds the abilities of the volunteer group, it can be subcontracted to a professional.

Despite the fact that you have engaged a professional to prepare the investigation, the project still remains your responsibility. Any professional can only respond to the stated needs and desires of the client. To avoid assumptions on the part of either, both client and consultant strive to understand each other. When the architect or consultant is finished, it is you and the members of your community who must live with the project.

I RESEARCH

Heritage properties undergoing revitalization must be approached with sensitivity to ensure both the proper treatment of the heritage fabric and the successful implementation of the new programme or changes. Only by researching the property itself as well as the requirements of the proposed programme can one be sure that all characteristics and limitations will be appropriately considered. As more and more data is gathered, the project will begin to develop its direction.

Research is a continuing process. Most research should be conducted before any construction begins, especially where detailed, accurate restoration is to occur. However, in many cases, it is not until the project begins that certain information becomes available. For example, in construction of the project, exterior cladding may be removed to reveal that the building was built in stages, contrary to previous suppositions. These discoveries add to the excitement of a heritage conservation project. They are all clues and pieces in unravelling the story of the heritage property. Do not be afraid of their discovery but rather be prepared to deal with new information as it comes to light. Every person working with new or old architectural design must be ready to go "back to the drawing boards". However, at some points decisions will have to be made.

The research of the heritage property may involve a number of areas of investigation. They are as follows:

a) The community – its character, needs and potential.

b) Heritage significance – the historical, architectural and archaeological importance of the property.

c) A structural and material analysis of the building in question.

d) An analysis of the heritage property site.

e) "Use Research" – the requirements of potential uses of the property.

Upon contemplation of the project, consider the possibility of placing parts or all of the collected research in the public library of other file accessible to members of the community interested in heritage properties and their development.

A – Take a close look at your community

The success of any heritage project is dependent upon its acceptance and utilization by members of the community. After studying the nature and characteristics of the community and thus determining exactly what it needs and what it can support, the best use for the property is determined. A heritage property, unlike a new development is tied to a fixed location and cannot go where the market already exists. Therefore, a heritage project requires a uniquely sensitive approach to discuss the requirements of the public in that particular area.

The object of a study of 'user needs' will vary with the project. In a commercial undertaking, the question will be whether the market will be able to produce enough revenue to make the project a worthwhile endeavour. Alternatively, in the case of a minimal or non-revenue producing property such as a museum, town hall, or an institutional building, the object of the study will be to determine if there is sufficient community interest or need. In this case, attendance or volunteer participation may be crucial to the success of the project.

The first step in looking at your community is to determine the composition of its citizens. Then, after ascertaining their needs and demands, the types of facilities and approaches that would appeal to them will give an indication of the property's potential.

Remember that the updated facility must be competitive with others in the community. For instance, an ice cream loving community may be able to support three ice cream parlours, but the creation of a fourth might overwhelm the market.

How do you begin to get a sense of the needs of your community and what it will support? Ask questions and observe. Who composes the community? Are there twelve year olds who like ice cream or senior citizens who need a community centre? Interview knowledgeable persons including:
– public administrators
– planners
– real estate and business people
– developers
– local press and media
– "the person on the street"

Ask about local trends for growth or planned amenities such as:
– schools
– churches
– shopping
– transportation services

Look into private and public programmes, whether they emanate from a local, provincial or federal level.

Take a long look at the neighbourhood and community, at the condition and appearance of adjacent buildings and the types of servicing facilities. Talk with professionals about the characteristics of:
– population
– business
– public services
– rents and occupancy
– tenant turnover

For heritage properties, tourist statistics and spending patterns often are significant and should be explored as well.

5 – The conversion of an old firehall to a theatre was an appropriate choice in this community.

After examining your findings, a range of conceptual opportunities available to the development become apparent. A good 'community needs study' and market analysis will be of great interest to any potential supporter of the project. In facilities such as a local community centre, public support in the form of donations, volunteer staffing and programming, in addition to attendance, can make or break the project. For this reason, it is best to obtain a firm commitment from the community in the form of rent concessions, donations of equipment and the like. If there is any doubt about local commitment, and the need for the facility, some of the same services or activities could be set up in various locations in the community to assess their popularity. For example, travelling display cases or craft activities may be set up in public buildings or shopping malls to determine the potential interest in a museum or a crafts centre.

Any concept for a heritage property is a good and viable one only if there exists sufficient community support to make it worthwhile. A heritage property fulfilling a vital need in the community will succeed and be assured of its future existence.

B – Heritage Significance

Properties have heritage significance based on their historical, archaeological, architectural and urban design value or for a combination of any of these. **In order to reveal heritage significance, appropriate research must be conducted.** Heritage research also fulfills an important documentary role by recording the existing state of the property prior to any change that may occur during the project development.

A property could be significant for its past association with a prominent citizen, as the location of an event important to the history of the community, or through a theme relevant to the locale. It may be a building distinguished for reasons of age, style or craftsmanship, for its builder or architect, or the building may be integral to the scale and style of the streetscape. Since the measuring stick of heritage significance is not always a building's distinctiveness but its contribution to the community, the representational or typical property is as significant as the property that is unique or rare.

Because the potential integrity and impact of the project will be guided by the research, heritage significance should not be based upon folklore or unfounded legend.

One step in the investigation of a heritage structure is to determine its value or relative importance in local perspective. Every property significant for its architectural or urban design value, should be examined with reference to those characteristic features. Those of importance to the particular community, neighbourhood, or social or ethnic group should be examined with reference to the values and concerns of those citizens, and the way in which their experience is in some way enriched or affected by its existence. As the study progresses, it will become apparent whether the property is of regional, provincial, national, or international value.

Investigation of heritage significance can be divided into 3 parts – historical, architectural and archaeological research.

1 Historical Research

Historical research will identify certain fundamental information, based upon documentary sources, which will aid in placing the structure in the proper historical perspective. This material will include the date of construction of the property, the varied uses of the building, the identity and background of those people associated with it, and the historical relationship, if any, of the property to the community.

A bibliography of all documents and published sources used in the compilation of research will provide future reference and will locate sources of photographic collections and drawings to be used in guiding the project. The reference should include texts, records, articles, unpublished manuscripts, and any interviews that may have been conducted.

6 – A building may be a part of a large industrial complex that contributed to the development of an area.

7 and

Local historians, including historical society members, may be willing to volunteer their services to prepare this research. However, in their absence, it will become imperative to consult or hire an experienced researcher familiar with the necessary techniques and sources of information.

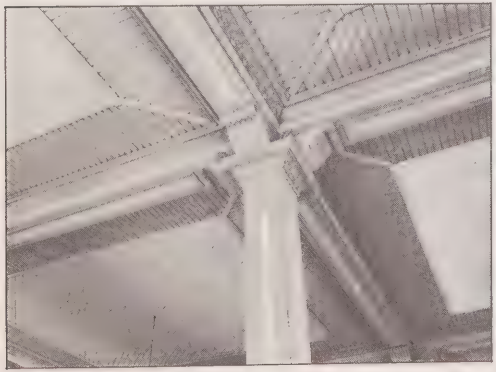
If the property has been designated under Part IV or Part V of The Ontario Heritage Act, 1974, the necessary research may have already been prepared by the Local Architectural Conservation Advisory Committee (LACAC). This heritage advisory group may be contacted through the clerk of the municipality.

See appendix for a list and location of sources for preparing the historical assessment.

2 Architectural Evaluation

An architectural recording and evaluation should include an assessment of the value in terms of the architectural history of the structure and the role the property plays in the streetscape. Apart from contributing to the assessment of the heritage significance of the property, this information will assist in developing the project's design strategy. This research should be prepared by a person with knowledge of architectural styles, materials and building technology.

The 'as found' (present) state of the building should be carefully recorded through sketch elevations, photographs and/or detailed drawings of key elements. Both representative views of the property and any details of interest or significance should be noted. All should be properly dated and labelled. However, an architectural evaluation of a property must be more than a description of existing condi-



8 – Buildings can have heritage significance either for outstanding features or typical architectural details.

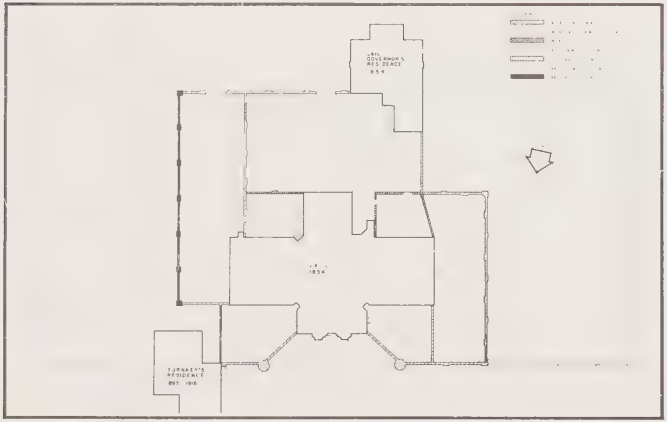
9 – Similar structures weather the years in different ways.

tions and elements; it must explain in what way these components are of value.

It will be necessary to know and record the way the property has grown or been altered over the years. Here, use of documentary sources and the on-site investigation will provide the clues.

The role of the individual property in the streetscape, sometimes called its "urban design value", is an important aspect to be considered. In the urban design sense, the importance of any single building in context may be greater than its individual value because it contributes to the integrity of the neighbourhood and community. For example, some buildings have been constructed at the ends of city streets to act as visual termination points.

11 – This former post office acts as a visual termination point for the main street.



10 – The way a building has grown over the years can be recorded in plan.

12 – This block of houses reflects a certain continuity of scale.

3 Archaeological Investigation

Archaeology is one aspect of heritage research that merits special attention when the property is being considered for restoration. Archaeology can supplement recorded history when written data is absent or limited. An historical archaeologist may be able to locate and identify the size and shape of buildings formerly on the site, confirm the identity of a structure and trace the stages of its development. Thus, archaeological research can be an important aspect in the exploration of the heritage significance of the property.

The clues of archaeological research are often fragments that may be overlooked by the uninitiated who do not realize their potential value. **Archaeological investigation must be the first activity on the site to ensure that no damage is done to the archaeological resources.** Often those working on the project will mistakenly assume that the first work to be performed is landscape maintenance or the correction of subterranean mechanical systems. Either of these two activities can easily disturb and destroy valuable archaeological material. Further, archaeology can be vital to the organization of the development plan for work on the site. Obviously, not every heritage property will warrant archaeological investigation but because this research must be carried out before any other activity, an archaeologist should be consulted to determine its necessity.

13 – This block of rowhouses exhibits a uniformity of scale.

The archaeologist will examine existing documented sources, visit the site itself and, based upon professional judgement in conjunction with others involved in the project, will determine the need for further investigation or digging. If digging is required, it should be scheduled as early into the development of the project as possible to avoid delay in other areas of work.

C – Structural and Material Analysis of the property

14 – Correcting problems of deterioration is one of the first problems that should be addressed in a heritage structure investigation.

15 – This circular staircase was kept intact when the building was restored.

16 – Inappropriate means of cleaning brick can result in this pockmarked, unattractive sample.

1 The Evaluation

An inspection survey of the heritage building explores the individual systems and materials to evaluate their condition and adequacy and to determine their life expectancy. The survey will reveal the need for any repairs or replacements that are immediately necessary or will prove more efficient in the long run, as well as which repairs should be given priority.

Areas of investigation include an assessment of the structional condition of the building; the state of its component materials; adequacy of features such as roofs and drainage; and an evaluation of its systems – plumbing, heating, electrical and fire protection.

In recent years, much well intended repair may have aggravated many material and structural defects of heritage properties. A specialist will correctly estimate the state of deterioration and will be familiar with the most appropriate means of repair.

The architect or person co-ordinating the investigation may suggest that a structural engineer be consulted to determine the stability of the edifice and the extent of repair necessary to bring it up to both functional and regulatory standards. This is especially true when a building is vacant or rundown, or when the anticipated use differs from the original one. Alone or in conjunction with a quantity surveyor, the engineer will make a general estimate of the

17 – A good series of architectural photographs describe the existing condition of the heritage property. On this particular site the photographs include a general view from the road

18 – The north facade of the house with later additions

costs associated with this stabilization. If the project is developed, often more involved investigative work will need to be carried out.

An architectural evaluation should be made of factors such as access and egress and other existing components of the building, to determine the architectural scope of possibilities and limitations at the outset. Plans of the building showing its layout and relationship of spaces will illustrate the size and configuration of the edifice and its systems. It should be remembered that this stage is only exploratory and it is not necessary to work out specific recommendations.

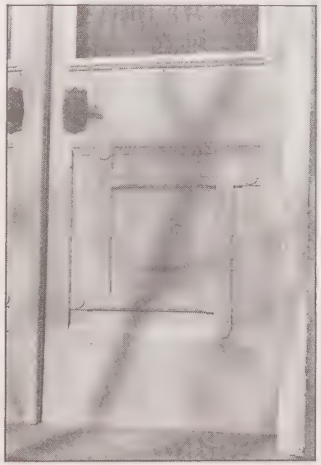
20 – West and north facades

19 – Close-up of two and a half storey octagonal bay along the east facade

22 – Close-up view of west facade with later additions along north wall

21 – View from south-west along the western boundary of the property

23 – Close-up view of main entry



24 – Detail of lower panel of right leaf of double door main entry

2 Architectural Drawings

Certain architectural drawings may be necessary for the heritage structure investigation, to show the physical dimensions of the building, the location of its systems, its layout and to act as the base from which all new design can proceed. Such drawings will usually include:

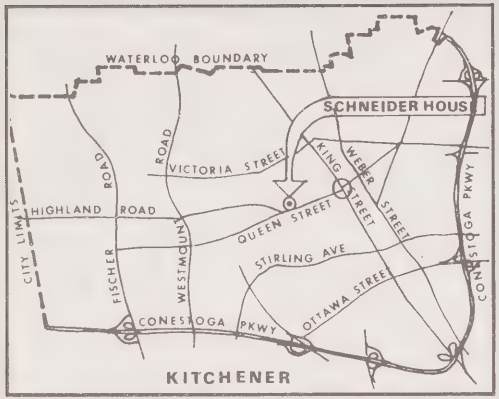
a) a site plan – the building located on the property with a clear relationship to other buildings, properties, roads and important features.

b) a floor plan of each storey.

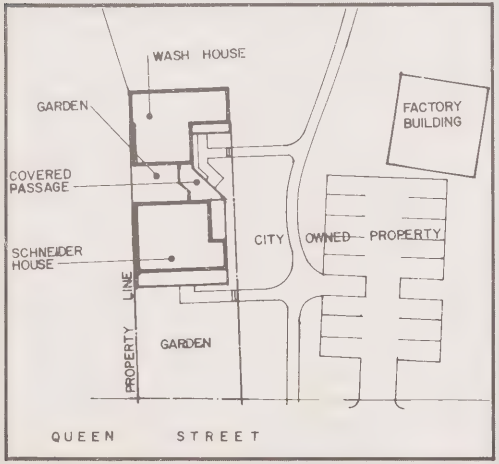
c) exterior elevations of all facades.

d) general sections – a cross-section of the building, dissecting it as if an imaginary line were passing through the building to show heights and structural systems.

These plans should be based on accurate measurements drawn to scale and prepared in a form that will allow them to be used throughout the process. There will be considerable savings involved if existing plans can be located for the building rather than drafting new ones. However, these plans must be carefully checked to ensure their accuracy. Later, if the project is developed, these plans may evolve into working drawings with the exact requirements carefully detailed.



25 – A heritage structure investigation presents information to those not familiar with the property. Appropriate background material should be provided.



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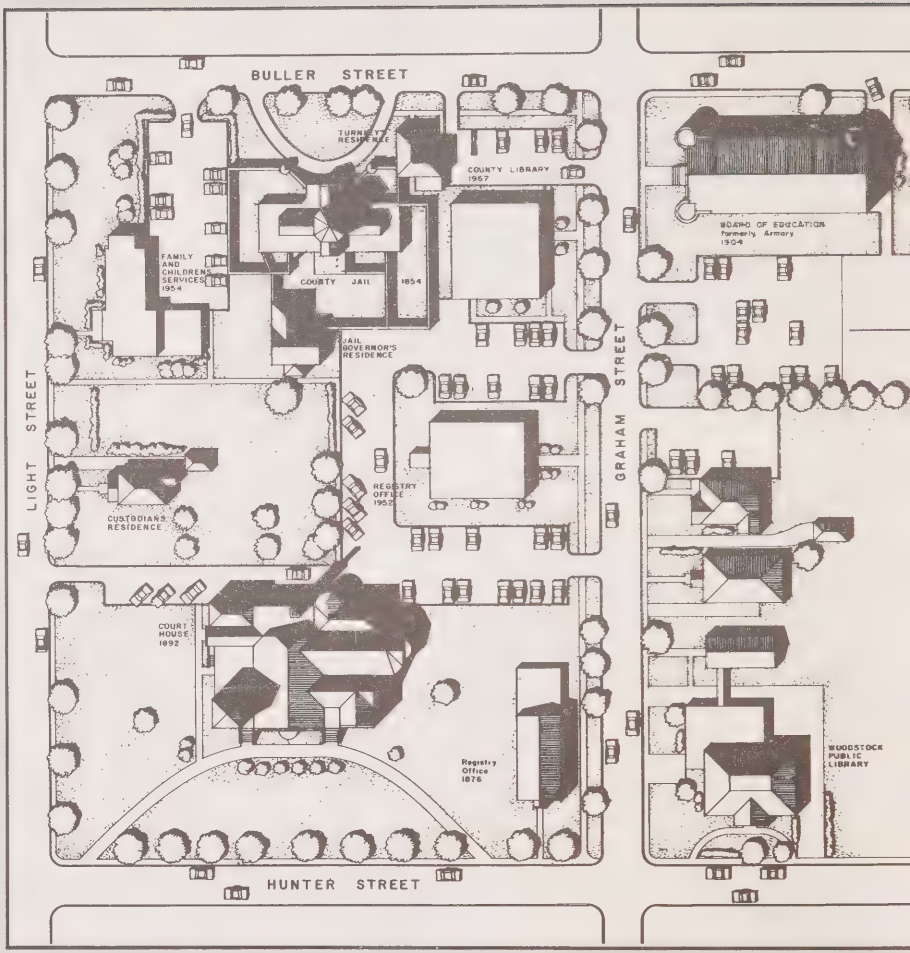
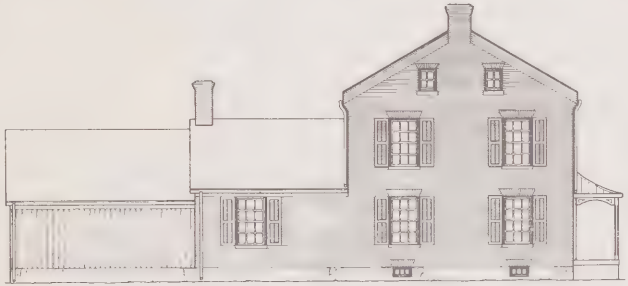


27 – The relationship of the heritage structure to its property and the adjacent area must be investigated.

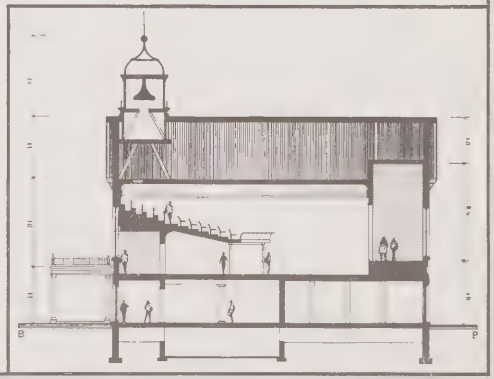
WEST ELEVATION

NORTH ELEVATION



SOUTH ELEVATION

28 – An accurate elevation drawn to scale of the principle facades of the heritage building is a prerequisite to any redesign.



29 – A section can show simultaneous activities within a structure.

30 – A section can also show the relationship of buildings to each other and to the landscape.

D – Site Analysis

The property must be analyzed to determine its characteristics, strengths, and sensitive areas. An understanding of the context of the heritage property will guide the integration of the development with the existing property. Only when the unique character of the site and the requirements of the new development are understood, can design be considered.

Every site has a system of elements that characterize it. Regardless of the project's scale, the components of a site analysis can be separated into 3 categories relating to the following features: 1) Natural, 2) Sensory, and 3) Human.

Natural features are all those that may affect the natural features of the site such as geology, water drainage, physiography, climate, vegetation and wildlife. An analysis of these features will assist in properly integrating new amenities into the landscape.

Sensory features include any aspect which is strongly discernible to the senses (especially sight). These features might be landmarks; the general character (formal, rustic etc.); colours; forms; textures; odours; edges of one space or the area; sound, etc. An analysis of these sensory features will help further understand the essence of the property.

31 – A heritage building must be analyzed in context. Here, the house, the other farm buildings and the landscape itself are interrelating parts of the total property.

Human features may be the most significant aspect of a heritage site analysis. The elements to be considered at this point include location, pedestrian and vehicular movement, utilities such as telephone, water and electrical services and such features as street furniture (benches, drinking fountains, and signs etc.).

How are these elements integrated into a site analysis? Let us take 'location' as an example.

It cannot be sufficiently emphasized that the location of the property is a vital element in determining its appeal. To be successful, a commercial heritage property must be readily accessible to the public and adjacent to supporting activities. The quality of the location is evaluated by considering the adequacy of existing transportation facilities such as highways, roads, buses, pedestrian routes and the relationship of these facilities to the property. The type and availability of transportation must be appropriate for the potential use. An adequate number of parking spaces at or near the site may also be critical. Because the success of the project may require that the property draw the attention of the passerby, its visibility must also be considered. The possible need for the expansion of the property to adjacent lots or the expansion of the building itself, should be taken into account.

Weigh all the characteristics necessary for a successful development. For example, consider the conversion of a warehouse to a theatre. The number of parking spaces must be adequate. A study of the site can help determine the best location for a parking lot. If the warehouse is located on a noisy thoroughfare, these sounds may detrimentally affect the performance in the theatre. Perhaps trucks could be prohibited from using the street at the scheduled hours of performance. The building could be soundproofed to eliminate all noise. If neither of these alternatives is possible, the level of noise may be the factor that prohibits the use of the warehouse as a theatre and suggests that a different use is dictated. The material that has been gathered about the condition of the site will thus be incorporated into the design of the new development.

It may be valuable for your own purposes to show all these important characteristics on a site map of the area. Depending upon the nature of the project, some of the features that can be included are:

- street and place names
- present type of adjacent land use
- bus routes and drop off points
- important spaces such as parks, squares, pivotal structures, etc.
- the boundaries of the site
- access and egress for the public
- the buildings or structures on the site
- the way the property is serviced
- special vistas or topographical features

E – Use Research

1 Determing Use

If a purpose of the heritage structure investigation is either to test, to suggest or to confirm an appropriate use for the heritage property, then 'Use Research' will become one of the first activities in the investigation. The proposed use of the heritage property must be at least tentatively determined as soon as possible, for the sooner it can be found, the faster the rest of the investigation can proceed. **However 'Use Research' is not completed in one installment but it will develop over the course of the project as new information is revealed.**

The most simple use for a property is one that is as close as possible to the original. For example, it is logical to rehabilitate and selectively restore a courthouse provided there exists a need for a courthouse of that size in that location. However, many structures cannot be used for their original purpose. Through an analysis of the data collected, modern uses which may prove to be feasible will begin to be suggested. The list of possibilities is endless – offices, shops, society headquarters, country clubs, information centres, restaurants, ... At first the choices may seem intimidating but, as the complementary research – heritage significance, building condition, size, location and neighbourhood analysis – is completed, the choices will become more clear.

Final selection will be determined by the comparable costs of the alternatives and the long term benefits to the client and community. In some cases, incorporating several uses may be the most feasible approach. For example, in old commercial buildings, one often finds the ground floor being used for retail space, the second floor as professional offices and the remaining upper floors as residential premises. Sometimes a mixture of revenue with non-revenue producing properties such as a restaurant and an art gallery can produce mutual benefits.

When making a study of possible uses for the building, consideration must be given to the consequent requirements and the possible effect on the historic value of the existing architectural fabric. If the interiors of an old structure have been entirely changed during the course of its history, there should be little hesitation in their complete re-arrangement. At the other extreme, in a building rich in social history or one with 'period' interiors, only those uses should be considered that can be accommodated within the existing arrangement of rooms, without changing their architectural character.

It may be determined that the cost of preservation of certain elements may not be feasible or may be in direct conflict with the programme requirements of the building. **There are no absolutes with respect to design of heritage properties.** Professional opinion will vary and guidelines can at best only suggest the direction to be pursued. The final decision will rest with those in control of the development.

2 Determining Use Requirements

An investigation of the proposed use will outline the operational and programme requirements of the new facility.

Simply ordering lunch in a French restaurant will not reveal all the details necessary for its operation. For a more complete understanding, it will be necessary to speak with the people behind the scenes and then to supplement this by reading appropriate texts on the subject. Only in this way will the spatial requirements of a particular facility, the way that it is to be used and the equipment necessary become evident. Consult those who could be using the facility for their requirements and preferences as well.

At this point, the needs and the equipment can be listed and the building analyzed for its suitability. Some sample questions might be:

- What is the weight of ten weaving looms for a crafts centre? Will the old warehouse floor support them?
- How much space is needed for a theatre stage? For a restaurant kitchen? Is it available?
- What are the 'behind the scenes' types of spaces necessary for a museum? Offices, workshop space, staff rooms, etc.?

All the foregoing information will also assist in answering questions from prospective donors and investors and may ultimately determine the success of selling the idea of the project.

32 – Consider all the planning and alterations necessary to convert this former church to a restaurant.

II ANALYSIS

Analysis is an on-going feature of a heritage structure investigation. The researched data will need constant evaluation and selection for its applicability to the development of the project.

When most of the research is complete, the investigation's analysis phase begins. This is the state at which the various aspects of the research, which have been proceeding independently, are brought together. Concepts for the use of the building and for the approach to the development are then considered in the light of all the information available. Some alternatives will be eliminated as unfeasible, while others will emerge as best meeting most of the goals established at the outset of the study. It is at this stage that a tentative use for the building will be established, and a programme set out for the preparation of concept designs. It is most important that this be well documented. No information or approach should be completely discarded and reasons for all decisions should be clearly articulated. It may be necessary to return to the analysis stage to re-think the problem if the preparation of concept designs reveals constraints that were previously not considered.

Besides the material gathered in the research phase, other aspects of the problem must be considered during the analysis.

These will include a study of the statutory regulations that may affect the project, as well as the method of management, operation and implementation.

A – Statutory Regulations

There exists a body of government regulations which may control or regulate many aspects of the development of a heritage project. Familiarity with these regulations will ensure that all the necessary factors are incorporated into the project and that none exist that will inhibit the development in any way.

Since any change must be approved prior to the development of the property, all regulations should be investigated as soon as possible. The procedure involved in changing land use designations or dealing with building codes may be a long one.

33 – Building code requirements can be met in a manner that is compatible with the existing structure, as shown by this appended staircase.

1 Title Search

As in any development project, it is to the advantage of all concerned to investigate at the outset the legal documentation to ensure that no undisclosed leases, agreements, liens or other encumbrances affect the proposed development of the property and that no unforeseen legal or financial problems will prejudice the implementation of the project.

2 Municipal Regulations

Municipal regulations regarding land use controls and zoning must be investigated any time there is an alteration, upgrading or re-use of a heritage property. The basis for these regulations is usually found in a municipality's Official Plan. Changes in heritage properties often involve new uses resulting in altered building capacities and requirements that may not be consistent with the existing land use designation and/or zoning by-laws.

By virtue of Section 35 of the Planning Act, municipalities are given the power to control matters such as the use of land and the height, bulk, density, and setback of buildings. Section 35(a) of the Planning Act requires certain conditions for the development or re-development of land which includes jurisdiction over site features. These sections may affect the development of any heritage property.

The local planning office can provide a comprehensive guide to all of the Official Plan provisions and zoning by-laws in effect. For the municipality to amend these controls, an application must be made to municipal council for

its approval, and, in some cases for subsequent review and approval by the Ontario Municipal Board. Approval for these types of actions must be granted before any work can proceed on the property. The clerk of the local municipality should be able to direct you to the appropriate sources of information.

3 Building Codes

According to Section 38 of the Planning Act, each municipality or region is given responsibility for the review and regulation of any construction. In this way, the proper and safe use of building materials and design can be ensured. Municipal building departments grant permits based upon their approval of plans submitted. Because regulations will vary from municipality to municipality, they must always be investigated at the outset of any development.

34 – Elements like ramps or railings can be easily added to existing buildings.

In January, 1976, a provincial building code was enacted, regulating all new construction and major changes for existing buildings. The criteria for determining what constitute "major changes" are established by local municipalities. Building departments will vary in their approach to applying the new provincial building code standard.

The life performance standards of buildings accepted in other eras are not the same as those of to-day. While older properties may not conform to the standards required of new construction, these inadequacies may, on occasion, be compensated for in other ways. The developer of the project should be aware that these alternative means may not, in all instances, be satisfactory to the local regulatory body. The application of building codes to the heritage property should be investigated as early as possible in the process since the costs involved in meeting standards can be a determining factor in overall feasability. As well, any requirements should be built into the first phases of construction. Remember that building department decisions can be appealed should the need arise. In nearly all building departments in the province, building officials can be approached with the tentative plans developed through the heritage structure investigation.

4 Building Requirements for Handicapped Persons

The Building Code Act, 1974, Part V, makes certain requirements in new buildings for consideration of physically handicapped people. The types of buildings that must meet these new standards are places of public assembly and education, office and residential buildings over a cer-

tain height, plus some retail and commercial outlets. These are all the types of facilities commonly provided through heritage conservation. These requirements are enforced through controls that govern the height, width, size and accessibility of building controls such as walkways, entrances and doors, ramps, washrooms and public telephones. If the changes to the heritage property are considered to be of a major nature by the local building department, it may become necessary to fulfill Part V of the Building Code Act. The local building department should be consulted regarding its approach to this issue.

In any case, all buildings of a public nature should maximize accessibility and use by the handicapped. Publications that explain design requirements for the handicapped should be consulted. Although these requirements may materially affect the building, a good architect will be able to deal with these changes in a manner that will not detract from the integrity of the property.

5 The Ontario Heritage Act, 1974

PART IV – CONSERVATION OF BUILDINGS OF HISTORIC OR ARCHITECTURAL VALUE

PART V – HERITAGE CONSERVATION DISTRICTS

The heritage property may be designated by a municipal by-law as having heritage value as outlined in Part IV of The Ontario Heritage Act, 1974, or as part of a heritage conservation district under Part V of The Act.

The by-law under Part IV makes any alterations that may affect the distinctive features of the designated property subject to review by Council on the advice of the Local Architectural Conservation Advisory Committee (LACAC). This review ensures that any changes to the heritage property do not detract from its significance. Council approval must be received before a building permit may be issued.

A Part V by-law similarly prohibits alterations and delays demolition. However, as the subject property is part of a heritage conservation district, other controls may be in place affecting such things as use, design, new construction etc. Where the property is within such a district, the district plan and implementing by-laws should be consulted before final proposals are developed for the subject property.

For the purpose of both community recognition and public funding, it may be advantageous to have the property designated under the Ontario Heritage Act, 1974. The LACAC should be approached regarding the eligibility of the property for designation.

PART VI – CONSERVATION OF RESOURCES OF ARCHAEOLOGICAL VALUE

To perform archaeological field work in Ontario, it is necessary to obtain a license from the Minister of Culture and Recreation. If the heritage project involves archaeological investigation, it will be necessary to apply for such a license.

6 Regulations Related to Use

There exists a group of regulations emanating from various government departments to control the operational requirements of a facility. For example, a restaurant will need to meet certain standards of health and sanitation as regulated by the Department of Public Health. A swimming pool complex will require a certain number of qualified supervisory personnel. Requirements for each use must be investigated individually.

B – Management Plan

Before any design begins, all the requirements of the facility must be worked out. Some of these will have been explored in the 'Use Research' stage. However, it will not only be necessary to understand these requirements, but also to determine 1) how the particular programme will function; 2) how it will be managed and 3) its policies. There will often be a conflict between what is envisioned and what can actually be implemented. For example, while one may wish to keep a museum open every day, the availability of staff may restrict the hours of operation. Therefore, it is important at this stage to compose a plan for the operation and management of the facility. It may be useful to approach this section of the investigation through a series of questions, such as:

- What is the specific nature of the use? For example, if the property is to be a museum, what type of museum will it be? How will the programme be carried out? Be as descriptive as necessary.
- What is the attraction of the facility, making it unique or necessary?
- What type of systems and equipment are necessary for the facility to function?
- Who will the property attract and who will participate? What types of people, their age groups, tourists, etc. What will the volume of users be?
- Who will staff the facility? What qualifications are required? What are the duties?
- What are the policies of the facility. What is the basis for decision making?
- Who is responsible for the operation of the facility? If it is a group, what is its status – non-profit foundation, municipality, investment group? In what way are policies and financial decisions made?

Also, consider the effect of the project upon the community. The upgrading, alteration or re-use of a property often indirectly affects the neighbourhood in which it is located. For instance, a residence converted to a restaurant may generate new traffic patterns and activity levels at different times of the day. An attempt should be made to predict these changes because it may be necessary to make adjustments for them. In this case, the increased amount of bus transportation to the site may involve moving the bus stop to another location. Additional street furniture in the form of benches, lights and directional signs may become necessary. All these additional features will need to be incorporated into the plan for development.

III SYNTHESIS

The new use for the property has been tentatively determined. Statutory regulations have been explored and the potential of the property itself is understood. A management plan describing the nature of the facility and its operating characteristics has been suggested. The synthesis of material collected to date must now be made. At this point, a conceptual design plan is developed for the property. The costs of the development can now be determined and finally, the manner in which the project is to be financed must be explored. Only at this stage can the final decision regarding the project's feasibility be made.

A – Conceptual Design

Conceptual design suggests ways in which the new programme requirements can be made to fit into the specific heritage property. **This is an exploratory phase that should not be confused with final design.** Very simply, conceptual design involves allocating and adjusting the existing spaces of the property for the proposed development. Through repeated trial and error, the new use and the existing property are integrated. Professional expertise is nearly always essential at this stage.

It should be remembered that the condition of the building and its existing services and configuration are not the sole indicators of its potential. The imagination of an architect, experienced in the conservation of heritage properties may be as great a determinant of the building's potential as are the physical constraints of the building itself.

1 Building Repairs and Alterations

Any structural or material problems of the building and the repairs necessary to remedy them will have been determined in the section on "Structural and Material Analysis". Now the solutions to these problems must be suggested, and the repairs and alterations incorporated into the programme of conceptual design.

If an addition or alteration is to be made, much consideration must be given to determining materials and styles that will be compatible with the existing structure. The use of inappropriate materials is a disservice to the heritage significance and architectural integrity of the property.

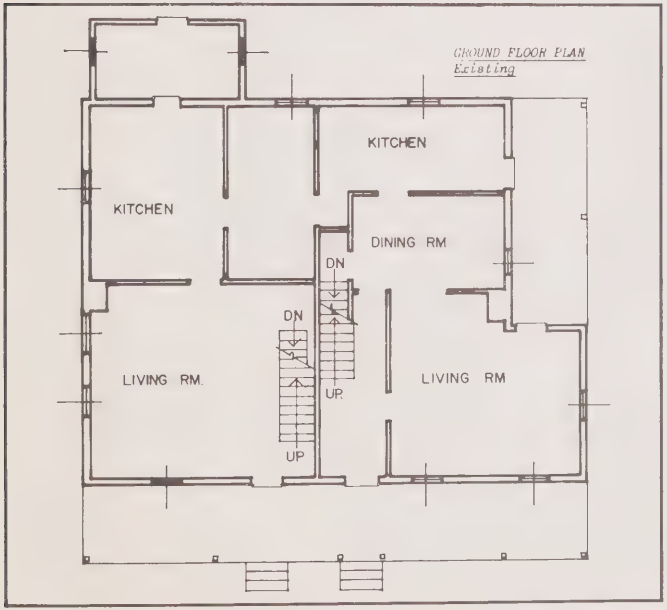
35 – Cleaning and repair of buildings should be approached carefully, in a way that is most appropriate to the building material, its condition and the proposed use of the property.

36 – Any modern additions made to a heritage property should be well integrated with the existing building.

2 Building Capacity, Layout and Facilities

The capacity of the spaces in the building and the circulation among them will greatly influence the layout of the facilities. However, the layout must also facilitate the maintenance and operation of the facility. Spaces must be correctly oriented and activities placed suitably together as much as possible. For instance, while the restaurant kitchen should be ideally on the same floor as the dining room, the layout of the heritage property may require that it be placed in the basement.

As explained in the 'Use Research' section, each facility has its own operational requirements. An art gallery, for instance, must have special equipment and security systems, lighting, temperatures, humidity and air conditioning controls, all specifically designed for the proper exhibition and protection of the collection. The physical requirements of various facilities are described in specialized tests and may be discussed with people working in and operating such facilities.



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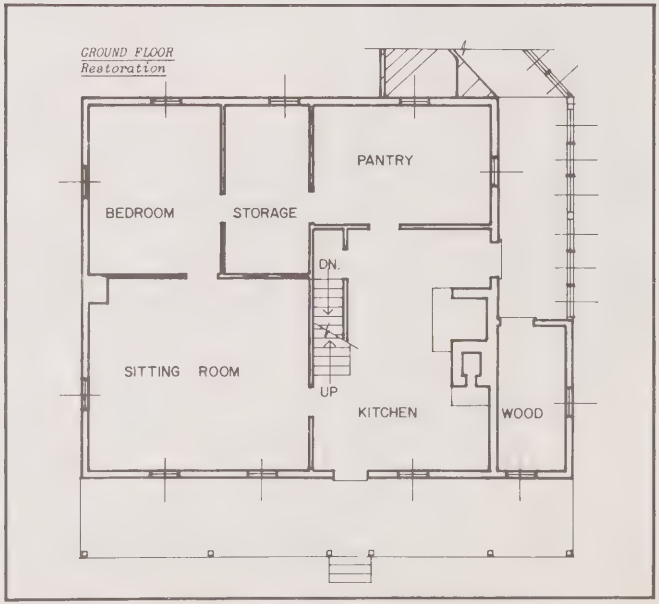


38 – In conceptual design interior space must often be reallocated.

3 Landscape Plan

The landscape plan should not be neglected in the conceptual design phase of the project. The landscape may have significant heritage features itself, such as an historic garden or outbuilding, that will need to be appropriately incorporated into the design. From another perspective, the landscaping of a property is its frame, integral to its image and to the way people move in and out of the building. A conceptual design plan should be prepared to integrate such elements as parking lots, sidewalks and street furniture into the total design package. It may be necessary to engage the services of a landscape architect to peform this function.

39 – The appropriate landscaping of a heritage property is an element that should not be overlooked.

B – Plan for Development

Upon completion of the conceptual design, the tentative plan for project implementation should be developed. This plan should be an organized outline showing the order of proceeding with the work. It should indicate clearly exactly what will be done, when it will be done, who will do it, how it will be done and who will be responsible for seeing that it is done. It should include the amount of time necessary for each phase of the project and the work involved in each of the phases. Not every project will proceed directly into the construction stage. Often the development will be more successful if it is phased (see Costing Section).

A second component of the plan for development is a statement of the manner in which the work is to be done. For example, will the work be subcontracted or will one building contractor maintain total responsibility? Who will supervise the construction? Will the work be contracted by the job or by day labour? Will there be any volunteer assistance?

40 and

41 – Commercial storefront before and after renovation.

C – Cost Analysis

An important part of the heritage structure investigation is a detailed breakdown of project costs. The order will vary from project to project but basically its components are as follows:

1 the initital costs of developing the project prior to construction.
2 the costs of construction.
3 annual operating costs of the property and the programme, including the cost of debt service.
4 potential income generated.

The complete cost analysis must be realistic in its assessment and comprehensive in its detail to avoid any unfortunate shortfalls in the future. In every case, the cost analysis must convince backers of the viability of the heritage project.

1 Costs Prior to Construction

Primarily, these will involve consultant's fees regarding the proposed development such as the preparation of a heritage structure investigation. They may also include costs involved in the acquisition of the property, promotion and any real estate and legal fees.

2 Cost of Construction

Capital costs are all the project costs following initial development. These include the costs of the construction of the project – labour, materials and equipment as well as all those involved with regard to taxes, insurance, any interim financing, consultant's fees, advertising and promotion, and any legal fees.

i) Cost Estimate

The manner of costing heritage conservation projects is not the same as costing new construction. Materials utilized in the construction of a heritage property may be more expensive or more difficult to locate. Heritage conservation is often considered to be more labour intensive than new construction. It may be necessary to employ highly skilled craftsmen. Higher contingencies should be included in a heritage property development to cover such unexpected situations as requirements for demolition of outdated systems or the occurrence of structural problems.

A quantity surveyor or an architect or contractor with proven ability at cost analysis will supply the most accurate estimate of the costs of construction. Other costs will be estimated based upon established fees and rates.

3 Annual Operating Costs

Since the need for funds will not end with completion of construction, any estimate of the cost of a project should also consider the expense of maintenance and operation for a three to five year period. In the case of a minimal or non-revenue producing property, where the profit margin is narrow or non-existent, a calculation will show the full extent of funding needed to keep the facility in operation. Annual costs can be divided into those concerned with the property maintenance and upkeep, and those concerned with the programme of the facility.

i) Property

Annual costs and the cost of cyclical renewal are those involved in the maintenance or operation of the property and the renewal of any outdated materials. These costs include:

- fuel, utilities (water, oil, gas, electricity, etc.)
- exterior lighting
- lawns, gardens, etc.
- snow clearing of roads, paving and sidewalk
- operation and maintenance of pools, storage buildings and other exteriors
- disposal costs (sewage, garbage, etc.)
- cleaning costs and labour
- service contract (management, operational staff)
- security
- mortgages, financing, etc.
- taxes

ii) Programme

A complete list should be made of all anticipated expenses for normal operation of the programme within the year. These include such costs as:

- wages and salaries of personnel
- all supplies and materials for the operation of the programme.
- telephone
- office expenses
- administrative overhead
- advertising

4 Income Analysis

For the purpose of this section, heritage projects can be divided into revenue producing and minimal or non-revenue producing categories. Revenue properties are those intended to earn a profit comparable with that earned by a newly constructed project such as an apartment or shopping centre. Minimal or non-revenue producing properties are those whose raison d'être is not profit but education or social welfare – libraries, museums or civic buildings. While the latter facility must be economically viable, its operation may be structured at a break-even level, or supported by monies specifically allocated for its maintenance.

The profit margin of commercial developments will be the critical determinant of project feasibility. In other properties such as museums or community centres, even a minimal amount of income may help to substantially offset the impact of operating costs. In all cases, allowance should be made for growing pains because it may take some time for the project to realize its full potential.

5 Phasing

The financial burden of the development, can be lessened by spreading development, and thus costs, over a period of time. It may be possible to renovate or restore a heritage property over a number of years by doing the work in stages. This may, in some instances, make it possible to begin operating the project before development has been completed in all areas. This may in turn reduce the need for interim financing because the project will be providing a source of income as construction progresses. However, in some empty buildings, working in stages is not really feasible or cost effective and it is best to complete all the work, and begin to realize revenue, as quickly as possible.

Pre-leasing, arranging for tenants or buyers prior to completion of the renovation work, may help to eliminate a good deal of the risk associated with recycling older buildngs. A commitment from one major user is an assurance both to the financiers and to other potential users of the property.

D – Financing

Regardless of the type of project and its requirements, the heritage structure investigation must convince the potential investors that the operation will fulfill its objectives and will provide adequate return in whatever form to warrant their commitment and investment. In all cases, a heritage structure investigation must explore and/or demonstrate the availability of adequate funding sources.

In commercial ventures, lenders are striving to maximize their return while minimizing their risks. The same may also be said of non-commercial ventures although return will be in forms other than financial. Investors will always be impressed by a strong commitment on the part of the promoters through a demonstration of significant investment in personal money, time or energy. In a commercial development, the promoter's reputation, record, and credit rating on previous projects becomes important as well.

Funding will take the form of either repayable loans or outright grants and donations. There are a variety of potential sources of aid for heritage conservation projects.

The most obvious are the standard financial institutions like banks, mortgage and loan companies, and insurance and investment groups. While these sources have often been characterized as maintaining a cautious, no-risk approach to heritage conservation, many can be flexible and are willing to listen.

An increasing number of savings clubs and union and church investment funds are being channelled into heritage conservation as mortgages and loans. In this way, these groups can assist the community while earning some return on their organization's money.

In a number of cases, members of the business community have contributed to the improvement of housing or the rehabilitation of neighbourhoods to attract new business. Some large Canadian corporations have set aside funds for charitable donations or grants and, if presented with the appropriate project, they might provide monies for heritage conservation.

In minimal or non-revenue producing developments, government funding programmes become essential. Due to the changing nature of these sources of aid, they should always be investigated prior to submitting any proposal. Determine if the agency helps groups such as your own. Look at the type and amount of assistance it provides and examples of programmes, groups or projects previously aided by that agency. Annual reports from social agencies and private foundations will indicate where the agency's contributions have gone in the past. Field officers of different government ministries and departments should be consulted. They will be aware of available monies, the proper application forms and deadline dates.

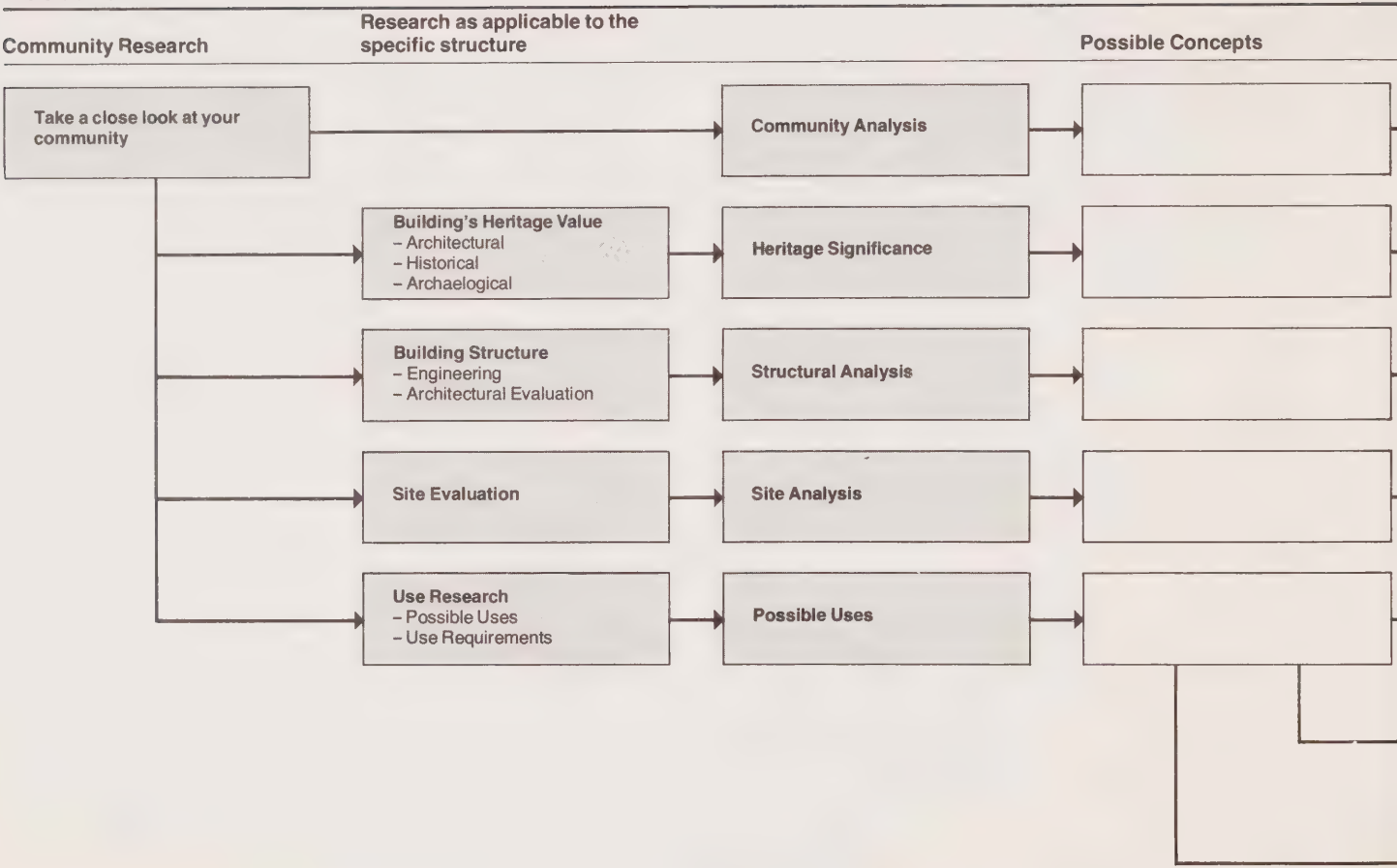
In all instances, it is important that you fully understand the conditions of any subsidy. Often the terms of funding will require matching grants in which the development group or a body within the municipality must raise a sum equal to the value of the grant. Sometimes funding may be granted on a yearly basis or may be available in one installment. In many cases, proposals must be submitted for grants prior to the commencement of any work. Some grants may be restricted to supporting non-profit organizations or will assist only the capital costs or, alternately, the operating costs of a development.

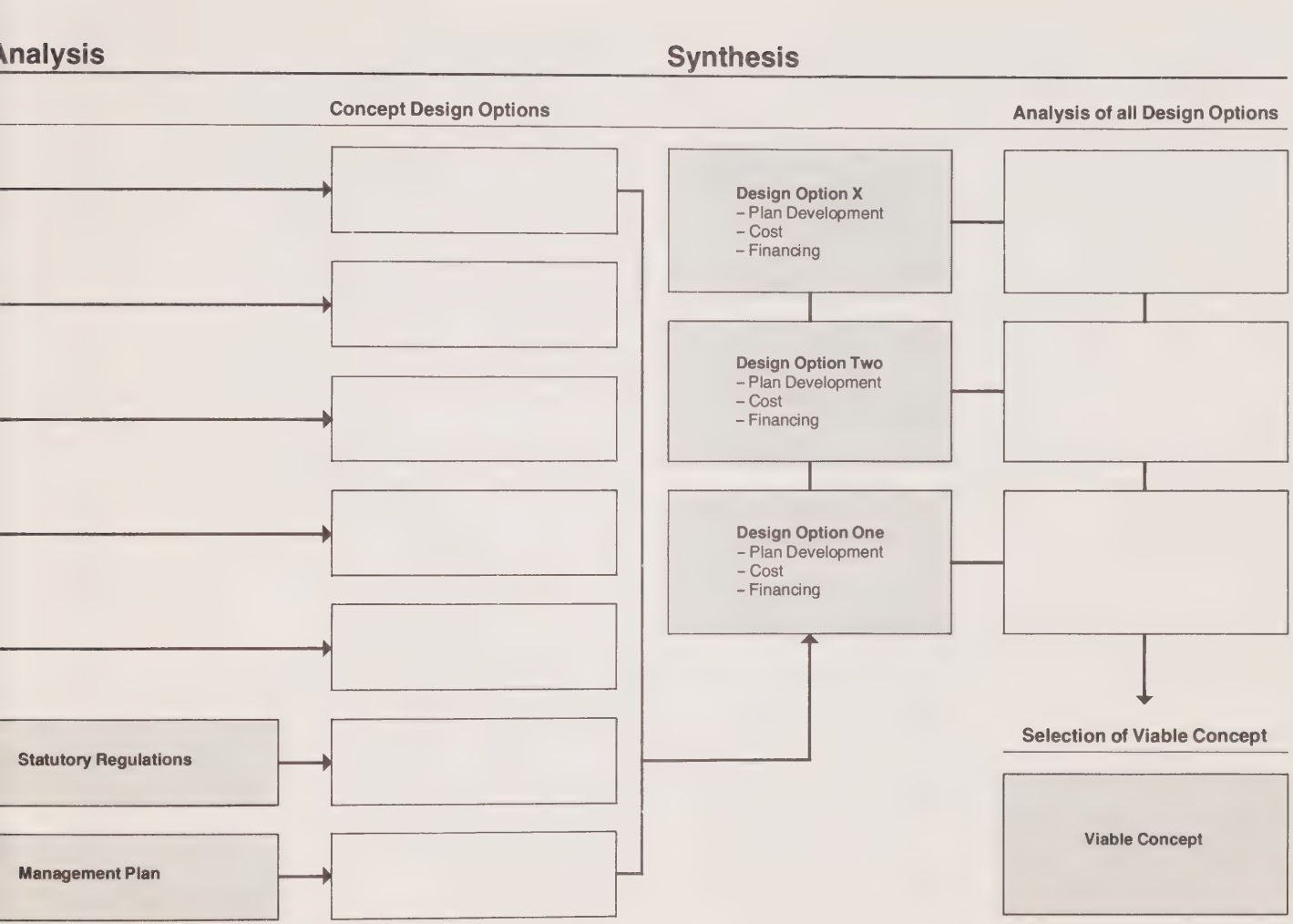
CONCLUSION

This guide has suggested the areas that might be considered when investigating a heritage property for possible re-use, improvement, or upgrading. As our architectural legacy varies in this province, so, in every case, will the approach and procedure involved in this type of investigation. Only discretion, creativity, and hard work remain constant as we go about conserving our past through an exploration of the potential of heritage properties.

Good Luck!

Research


Community Research
Research as applicable to the specific structure
Possible Concepts
Take a close look at your community
Community Analysis
Building's Heritage Value
– Architectural
– Historical
– Archaelogical
Heritage Significance
Building Structure
– Engineering
– Architectural Evaluation
Structural Analysis
Site Evaluation
Site Analysis
Use Research
– Possible Uses
– Use Requirements
Possible Uses


Analysis
Synthesis
Concept Design Options
Analysis of all Design Options
Design Option X
– Plan Development
– Cost
– Financing
Design Option Two
– Plan Development
– Cost
– Financing
Design Option One
– Plan Development
– Cost
– Financing
Statutory Regulations
Management Plan
Selection of Viable Concept
Viable Concept

APPENDIX

A – Building History: Dating and Historical Assessment

With some local adaptation, one should progress through the following sources in an effort to complement the information revealed through architectural design and detail. Many of these sources are available locally. Documentation should be sufficient to convey to the reviewers the overall feeling of the property, its crucial features and the basis for judgement about its significance.

i) Historical Context. To provide the necessary context, a wide reading in the locality's history is required at the outset. Published local or regional histories, articles or manuscripts should be sought from local libraries, museums, historical society members, heritage groups such as Local Architectural Conservation Advisory Committees (LACACs), or women's institutes. In some instances, the same institutions maintain historic building files.

ii) Property Registration Records. These are usually found at the county registry office (and also the Provincial Archives) and indicate the sequence of property owners through various transfer deeds (e. g. bargain and sale, mortgage, lot divisions, will, etc.). Ownership is an integral component in piecing together a building history, but only occasionally does one find detailed reference to specific buildings on a property.

iii) Municipal Assessment Rolls. While compiled for local taxation purposes, a series of rolls can give vital information relating to a building's history. A substantial change in the assessed value of a property, for example, can indicate the erection of a new structure, renovation, changing function, or the loss of a structure on a given lot. Where they have survived, assessment rolls are normally found at a municipal office or at the Provincial Archives in Toronto.

iv) Census Returns. These potentially valuable records, available for the period 1851-71 in Ontario, provide detailed genealogical and residency information for much of the province. In many instances, too, census records contain information on the type of structures occupied or commercially operated. Census records are available at the Provincial Archives, the Public Archives in Ottawa and at some libraries.

v) Visual Material. Maps, artistic renderings, and historical photographs constitute an immensely rich source for building history. Private collections, local institutions, and larger archival or art centres are all possible locations for this type of material. Maps may be found in various forms, including local town plans, engineering plans, and insurance plans.

vi) Other sources. This will vary throughout Ontario, but the researcher should inspect the following: municipal building permits, municipal records (fire reports, council minutes), institutional records (church, school, etc.), business records, newspapers, trade journals, and published residential and business directories.

B – Architectural Description

The description of a building should include the following kinds of information where applicable. Photographs and drawings are the most effective means of portraying the characteristics and details of the property.

1 Type of structure (dwelling, church, commercial, etc.).
2 Building placement (detached, row, etc.).
3 General characteristics:
  a) overall shape or plan (L, rectangle, etc.)
  b) number of storeys
  c) number of vertical divisions or bays
  d) construction materials (brick, frame, stone, etc.) and wall finish (type of masonry bond, coursing, etc.)
  e) roof shape
4 Specific features – location, number, and appearance of:
  a) porches (verandahs, stoops, etc.)
  b) windows, c) doors, d) chimneys, e) dormers
5 Important decorative elements
6 Significant interior features
7 Number, type, and location of outbuildings and their dates, if known.
8 Other man-made elements (roadways, contemporary structures, landscaping within the area).
9 Known alterations or changes to the property over time and dates if available. A floor plan may be a useful tool if many additions have been made.

C – Presentation of the Investigation

The format for each investigation will vary depending upon the nature and the purpose of the investigation. If the report form is used, it is most effective if the crucial findings of the study are contained in the first section of the report so that the reader will have an early reference to the final recommendations and can use them as a guideline for considering the feasibility of the conclusions. The background and the reasons for the recommendations are contained in the body of the report. Each recommendation set out in the beginning should refer to pages of the report where detailed explanations and calculations demonstrate its credibility.

Not all investigations will lead to a report. However, if they do, an introduction to the investigation might include the following features:

- the location of the property
- ownership of the property
- who prepared the investigation (at the end of the report, it may be useful to list all the people who have contributed to the research and analysis, both for their credit and for future reference).
- the client for whom it was prepared
- a brief history of the project
- the reason for preparing the investigation
- the "terms of reference" or the goals that the report is attempting to achieve.
- the sources of funding of the investigation

The remainder of the report should methodically outline the supporting data. This will be composed of the material generated from the respective sections on research, analysis and synthesis. The content of a heritage structure investigation must be presented in a logical and sequential order but above all, the content must be relevant to the objectives. If, for example, a building is being renovated to include a day care centre, that does not mean that the report should include statements and opinions of five year olds. Statistical and supporting data should not be included in the body of the text book but appended to it. The report should be referenced with a table of contents that describe the material contained and establishes the sequence of presentation. Any photos, plates or maps must be neat and professional and placed within the related section under discussion or by direct cross-reference.

Quality, not quantity, is the most essential characteristic of a good report. The standard will invariably affect the amount of financial and political support generated for the project.

GLOSSARY

Building Code
Government regulations designed primarily to ensure standards of safe use and construction of buildings.

Community Needs Study
An investigation of the social, eductional, recreational and cultural requirements of a community.

Official Plan
The official programme and policy document required by the Planning Act concerning planning in a municipality. The plan itself consists of policies on the physical development of the community.

Period Interior
A room or rooms in a heritage building which, through appropriate furnishings and decoration portray a particular time in the past.

Plans
Graphic representations of the layout of a building, site, or area of land, drawn on a horizontal plane.

Quantity Surveyor
The quantity surveyor measures the work shown on drawings or suggested by an architect, and calculates the materials, and, frequently, the costs involved.

Restoration
The work involved in returning a structure to a certain period in its history, often to its original appearance.

Specifications
A detailed description prepared by a consulting engineer or architect to tell the contractor everything about the workmanship and materials to be used in a project which cannot be shown on the working drawings.

Terms of Reference
In an investigation, a listing of study objectives to which the investigation or report will be addressed.

Working Drawings
Scaled drawings which indicate by note and detail all elements of the work to be done, the materials required and the methods of application

Zoning
The reservation of certain areas of land for specific uses and the enforcement of these uses by restrictions on building types, heights and sizes.

1 – Prince of Wales Hotel, Niagara-on-the-Lake, Ontario
2 – Ermatinger House, Sault Ste. Marie, Ontario
3 – Bank of Montreal, Hamilton, Ontario
4 – 33 Hazelton Avenue, Toronto, Ontario
5 – Firehall Theatre, Berkeley St., Toronto, Ontario
6 – Elora, Ontario
7-8 – Jakes/MacLean Block, Merrickville, Ontario
9 – Peterborough, Ontario
10 – Oxford County Square Study
11 – Almonte, Ontario
12 – Toronto, Ontario
13 – Belleville, Ontario
15 – Kingston Town Hall, Kingston, Ontario
17-22 – Smith-Geddes House, Grimsby, Ontario
25 – The Schneider House Study
26 – The Schneider House Study
27 – Oxford County Square Study
28 – Van Egmond Study
30 – Oxford County Square Study
32 – The Church Restaurant, Stratford, Ontario
33 – The St. George Graduate Residence, Toronto, Ontario
35 – Prince George Hotel, Kingston, Ontario
36 – King City, Ontario
37-38 – The Schneider House Study
39 – Sibbald Manor, Jackson's Point, Ontario
40-41 – Neilson Block, Dundas, Ontario

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SOUTH ELEVATION